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ABSTRACT

The identification of research strategies to study affective outcomes of physical education is a complex task heightened by the fact that physical education has a variety of meanings to people inside and outside the field. Conference participants expressed various points of view which future researchers should consider in developing research on affective outcomes. Although it might be desirable for broad research strategies to be developed by groups of interested and concerned professionals, the actual research should be developed and conducted by the researcher in physical education. A variety of approaches, particularly in elementary school physical education, should be encouraged in hopes of improving the quality and significance of the research efforts. A review of research studies in the area of affective outcomes (1960-1970) suggests inadequacy of measurement techniques to assess attitudes toward physical activity. It is recommended that a broadly conceived research program in this area begin with a series of observations of various programs to ascertain key variables to be considered in future studies. (Author/CJ)

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FINAL REPORT

Project No. 0-0352
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CONFERENCE ON CONCEPTUALIZATION OF RESEARCH PROBLEMS ON THE AFFECTIVE COMPONENTS OF PHYSICAL EDUCATION INSTRUCTION IN THE ELEMENTARY SCHOOL

(May 25-26, 1970)

Roscoe C. Brown, Jr.
New York University
School of Education
Washington Square
New York, New York

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July 1, 1970

U.S. DEPARTMENT OF
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INTRODUCTION

Specialists in many disciplines such as physical education, rehabilitation, physiology, and psychology have become increasingly aware of the value of physical activity in the development and maintenance of physical health and emotional well-being. If individuals are to receive the benefits of physical activity, there must be fairly regular participation in such activities. Current evidence suggests that American youth and adults tend not to engage regularly in physical activity. Since the willingness to participate regularly in physical activity is to a large degree a function of attitudes toward such activity, it is important to study the development of attitudes in physical education.

Physical education probably elicits a wider range of likes and dislikes than any other school subject. While physical fitness and motor learning aspects of physical education are fairly well known, very little is known about the affective components of learning and instruction in physical education. Answers to questions such as the following must be found:

1. How do children actually feel about physical education?
2. Why do some children enjoy physical education?
3. Why do many boys and girls object to physical education?
4. How might physical education acquire a high positive valence (affective, or feeling value) for children?
5. Does physical education really develop a lasting interest in physical activity?
6. Do any affective changes occur in pupils' behavior as a result of their exposure to physical education? What factors are related to these changes?

These and similar questions should be answered by research into the affective aspects of physical education. Since the child begins to develop his basic attitudes in the elementary school, it seems logical that such research should be focused on that level initially.

Support from the Office of Education was received for a meeting of a task force of physical education and other specialists who would conceptualize the types of research needed to answer questions similar to those posed above and recommend individuals who might be called upon to conduct

collaborative, interdisciplinary research on the affective components of teaching physical education.

OBJECTIVES OF THE CONFERENCE

1. To identify the apparent affective components of learning and instruction in physical education at elementary school level.

2. To identify the apparent sources of these affective components.

3. To conceptualize ways of determining through research the actual affective components and their sources which are directly related to physical education.

4. To conceptualize ways of determining through research how physical education might acquire a high positive valence for children.

DISCUSSION BY THE PARTICIPANTS

A number of questions and concerns were identified by the participants at the beginning of the conference. Some of these questions and concerns are listed below.

Dr. Wessels indicated many people seem to express negative attitudes toward physical education in elementary school. Dr. Wessels expressed the point of view that many physical education people do not seem to have their goals clearly in mind. In his opinion too many physical education teachers in the elementary school emphasized perfectionism as a goal.

Mrs. Peters felt that we should look at the effect of class size, teacher behavior and interaction between teachers and pupils on the affective outcomes of physical education in the elementary school.

Dr. Spaulding said that the affective outcomes of physical education vary as the child goes through various developmental stages, the sensory motor period, later childhood, and the period of early adolescence. He listed seven considerations involved in the growth of the child that have implications for physical education. (1) The child's development begins with motor and visual-motor exploration during which time the child begins to learn about his environment through the use of his body; (2) The child learns

certain cognitive skills during period of play; (3) Participation in play and physical activity allows the child to develop his concept of self. He begins to identify himself as an organism and begins to relate the use of his body to pleasure; (4) The child becomes concerned with the development, strength, physical fitness and health during later childhood. Unfortunately, many people have identified physical fitness and strength with matters of power and control; (5) Competition is a major factor when children participate in physical activities; (6) The profit motive increases the desire of some children to participate in physical activities due to the impact of professional sports; (7) The child develops a certain mastery of self because of his participation in and eventual proficiency in physical activities. Dr. Spaulding pointed out that the teacher is a very powerful person in the life space of a child and when the teacher tends to set standards for children that are too rigid, some children will not want to participate in physical activities. Play should be seen as an activity that is able to be controlled by the child for the child's purposes rather than being controlled by the adult as for the adult purposes. He also pointed out that some elementary schools teachers tend to fear aggressive physical behavior and tend to pass this on to the children.

Dr. Hanson expressed a concern which she continued to express throughout the conference that the conference participants often confused physical education with sports and athletics. The participants also tended to use examples from secondary school physical education in discussing elementary school physical education. She suggested that we look at current trends in elementary school physical education. She indicated that although most physical education in the elementary school is taught by classroom teachers, there is a trend toward the development of specialists who are especially prepared in elementary physical education. In view of these developments, we should be very careful not to use a watered-down secondary school program in physical education as the model for the elementary school physical education. The modern physical education curriculum emphasizes the exploration of the environment through movement problem solving and the development of basic motor skill patterns. The well-known psychologist, Jean Piaget, has also emphasized the importance of motor activity in the child's learning. These insights are beginning to be reflected in the contemporary programs in physical education.

Mrs. Boyer reinforced Dr. Hanson's points about trends in elementary school physical education.

Dr. Brown suggested that there are three possible approaches that might be used in accessing the affective outcomes of physical education. (1) To study various existing models of physical education in the elementary school in order to determine what happens to young people as a result of participation in physical education. (2) To study some of the new models of physical education, particularly the movement exploration model, to discover what happens to the affective outcomes. (3) To conduct controlled research on programs and programs outcomes in specific micro-cosmis settings, such as the Research & Development Center at the University of Georgia which is currently studying physical education in pre-school settings.

Dr. Loy pointed out that the Research & Development Center John Hopkins is particularly interested in studying games and play particularly in socially deprived groups. He indicated that games have excellent potentials for looking at human development.

Dr. Meyer indicated that as an educational psychologist he has been interested in how perceptual motor experiences relate to cognitive development. He also pointed out that even though there are negative feelings among some parents and teachers concerning physical education in the schools, sports are very popular. Why are sports popular and sometimes physical education is not? He then raised a question of physical activity for what. What kinds of attitudes toward activity are children entering school with and to what extent should, and can, the school attempt to modify some of these attitudes?

Dr. Davis indicated that our main concern should be to try to discover what is it that makes for a positive or negative valence toward physical activity.

Dr. Beezer reinforced this point indicating that he saw this as probably the main outcome of the conference. He indicated that in the previous conferences to conceptualize research on the affective valence in other school subjects had raised the following key questions.

1. What were the origins of negative valences?
2. What were the origins of the positive valences?
3. How can educators keep negative valences from occurring?

4. How can educators help children to develop or acquire positive valences toward the particular subject area?

In the subsequent discussion it was pointed out that it is important for the teacher to attempt to alleviate anxiety on the part of children in terms of approval or disapproval, and fear of control if positive affective outcomes are to occur. One of the main factors that contributes to negative valence on the part of children is the degree of control that teachers utilize in physical education situations. The group then considered models that could be used in studying the affective outcomes of physical education in the elementary school.

MODELS TO ASSIST IN FORMULATING RESEARCH STRATEGIES

1. The group agreed on three <u>possible goals of elementary school physical education</u> to help focus the discussion.

A. The child should learn to participate in activities which would enable him to explore his environment.

B. The child should participate in activities for enjoyment and fun.

C. The child should learn basic movement patterns which will be the basis of further motor skill development.

D. The child should participate in those basic physical activities which assist in the development of cognitive behavior.

2. The following <u>affective outcomes of elementary school physical education</u> were accepted as the frame of reference for formulating research strategies:

A. Joy of participating in activities involving movement.
B. Self esteem.
C. Pleasure involving body awareness and sensations.
D. Satisfaction derived from obtaining respect of others.
E. Feeling of mastery.
F. Sense of achievement.
G. Self confidence.
H. Acceptance of failure.
I. Appreciation of physical movement.

3. The group then identified factors that might influence the attainment of the affective outcomes of physical education. These factors were organized into three categories: (A) Attributes of Teachers (B) Attributes of Activities, and (C) Cultural Factors.

A. Attributes of Teachers

(1) Ways of Manifesting Approval
(2) Level of Anxiety
(3) Acceptance of Childrens Behavior
(4) Fairness and Lack of Ambiguity in Dealing with Children
(5) Pacing or Rate of Introduction of New Ideas
(6) Amount of Physical or Body Contact in Teaching
(7) Ways of Manifesting Disapproval
(8) Amount of Modeling Behavior that Teacher Exhibits
(9) Attitudes of Teachers to Physical Activity

B. Attributes of Activities

(1) The Amount of Feedback About Effects of Movement (Kinesthetics, Tone, Etc.)
(2) The Degree of Interaction (Individual, Group, Team)
(3) The Amount of Boy-Girl Contact
(4) Differences in Activities Due to Age (Maturation)
(5) Degree of Physical Danger
(6) Complexity in Relationship to Success and Failure
(7) Degree of Distortion of Vestibular Balance (Vertigo)
(8) Amount of Caloric Output in Relation to Amount of Perspiration (sweat)
(9) Amount of Public Exposure Afforded by the Activity
(10) Degree to Which the Activity Conforms to Role Model for Given Sex and Age
(11) Extent to Which the Use of Equipment in Activity Affects the Individuals Response to His Environment. (Hitting ball with an object, tennis racquet, golf club, etc.)
(12) Degree to Which Level of Skill can be Perceived by Observer
(13) Degree to Which Activity Allows Individual to Modify Stimuli
(14) Nature of Outcome - (Chance, Skill, Strategy)
(15) Opportunities for Creative Expression
(16) Opportunities to Make Choice

C. Cultural Factors

(1) Socio-Economic
(2) Ethnic
(3) Facilities
(4) Values
(5) Parental attitudes toward physical activity

RESEARCH STRATEGIES

1. After considerable discussion which focused on the difficulty of obtaining controlled situations in which to study affective behavior, the group agreed that it would not be particularly fruitful to use research designs which attempt to manipulate instructional conditions until adequate methods of measurement of the affective outcomes were developed. The group suggested that the first step should be to conduct critical observations of what happens in the physical education in the elementary school in regard to the affective outcomes. In this research we should attempt to identify cues that would indicate the affective responses of children to physical education. Measurement techniques could then be developed to assess these affective behaviors. (The look on the child's face while he is participating might be one such cue. Some of the subtle movements in his response to an activity might show positive or negative responses. Children could be asked to draw pictures of what they would like to do at sometime in the future. Inclusion of physical activity or play in these pictures might indicate a positive valence toward activity.)

   The following points could be used as guides in the observations.

   1. The approach to the locus (or place) of the activity.
   2. Facial expression during the activity.
   3. The rate of approach or the rate of withdrawal in the activity.
   4. Duration of involvement in the activity.
   5. Persistance in the activity before stopping.
   6. The number of unsolicited cries of glee.
   7. The number of unsolicited positive or negative comments.

2. It was also suggested research might be done in laboratory settings where certain factors such as the teacher's way of showing approval or disapproval or the characteristics of the teacher might be modified and the effect of these

manipulations on the affective outcomes could be determined. The affects of various modifications of the physical education experience on the affective behaviors of the children then could be examined in a systematic way.

A visual model of the strategies for research on the affective outcomes of physical education in the elementary school is presented in Fig. I.

3. It was suggested that rather than looking at any particular type of program when conducting the observations on the affective outcomee of elementary school physical education, we should sample a variety of types of programs (movement exploration programs as well as programs emphasizing development of specific sport and game skills). We should also sample different types of leaders, formal and informal. We would then be able to look at the affective outcomes of a spectrum of physical education programs in the elementary school. The question of how we do this and where we do this should be left to be worked out by the particular groups of people in physical education who might be interested, have the competence, and have the ties to other disciplines which would be helpful in developing the specific research design.

4. It was pointed out by the psychologists and measurement specialists that although an inter-disciplinary approach is desirable in conducting research on the affective outcomes of physical education, physical educators should assume the major responsibility for initiating and conceptualizing the research. The role of the various disciplines outside of physical education would be to serve as specialists in development of measurement techniques and research designs. The specialists from psychology, child development, pediatrics and educational research emphasized that it is important that someone study how and what physical education contributes to the total development and growth of the child, cognitive and affective as well as psycho-motor. The major focus of research in physical education should be to determine the role of movement in the development of the human organism.

5. The names of specialists and institutions who are interested in the affective outcomes of physical education were identified. Individuals who were mentioned included: Professor Warren Johnson, University of Maryland, Prof. Bryant J. Cratty, UCLA, Prof. Gerald Kenyon, University of Wisconsin and Prof. Roscoe C. Brown, Jr., New York University and Prof. John Loy, University of Massachusetts, Prof. Kay Barrett, of the University of North Carolina and Prof. Michael

Ellis of the University of Illinois. Institutions that were mentioned as having interest in the affective outcomes area included the University of Wisconsin, Purdue University, the Movement Explorational Project at Plattsburg (NY) State College, The Kennedy Center as Peabody College in Tennessee, University of California at Los Angeles and New York University.

It was re-emphasized at the conclusion of the conference that it was the responsibility of physical educators to initiate research on the affective outcomes of physical education specialists, in cooperation with specialists from other disciplines.

SUMMARY AND RECOMMENDATIONS

1. The identification of research strategies to study affective outcomes of physical education is a quite complex task. Its complexity if heightened by the fact that physical education has a variety of meanings and valences to people, both inside of and outside of the field of physical education. Several points of disagreement between the participants emerged during the conference and, as a result, the group was somewhat impeded in coming to clearly delineated research strategies. On the other hand, it was important for the various points of view to be identified so that future researchers will become aware of them and consider their implications in developing research on the affective outcomes.

2. Although it might be desirable for broad research strategies to be developed by groups of interested and concerned professionals, it is the researcher in physical education who should develop and conduct the actual research. Graduate students and young post-doctoral researchers should be encouraged to explore a variety of approaches to research on the affective outcomes of elementary school physical education. In this way it should be possible to improve the quality and significance of research in physical education.

3. A review of abstracts of the research studies on the affective outcomes of physical education from the Research Quarterly for the period 1960 to 1970 (See Appendix C for the abstracts) revealed that these studies are not of great value in the identifying affective outcomes. The main reason for this is the inadeqacy of measurement techniques to assess attitudes toward physical activity. Also the research designs have not adequately controlled the many factors influencing affective outcomes of activity.

4. It is recommended that a broadly conceived research program to study the affective outcomes of physical education begin with a series of observations of the various types of programs to determine the key variables that might be considered in future studies.

A MODEL FOR RESEARCH ON THE AFFECTIVE OUTCOMES OF ELEMENTARY SCHOOL PHYSICAL EDUCATION

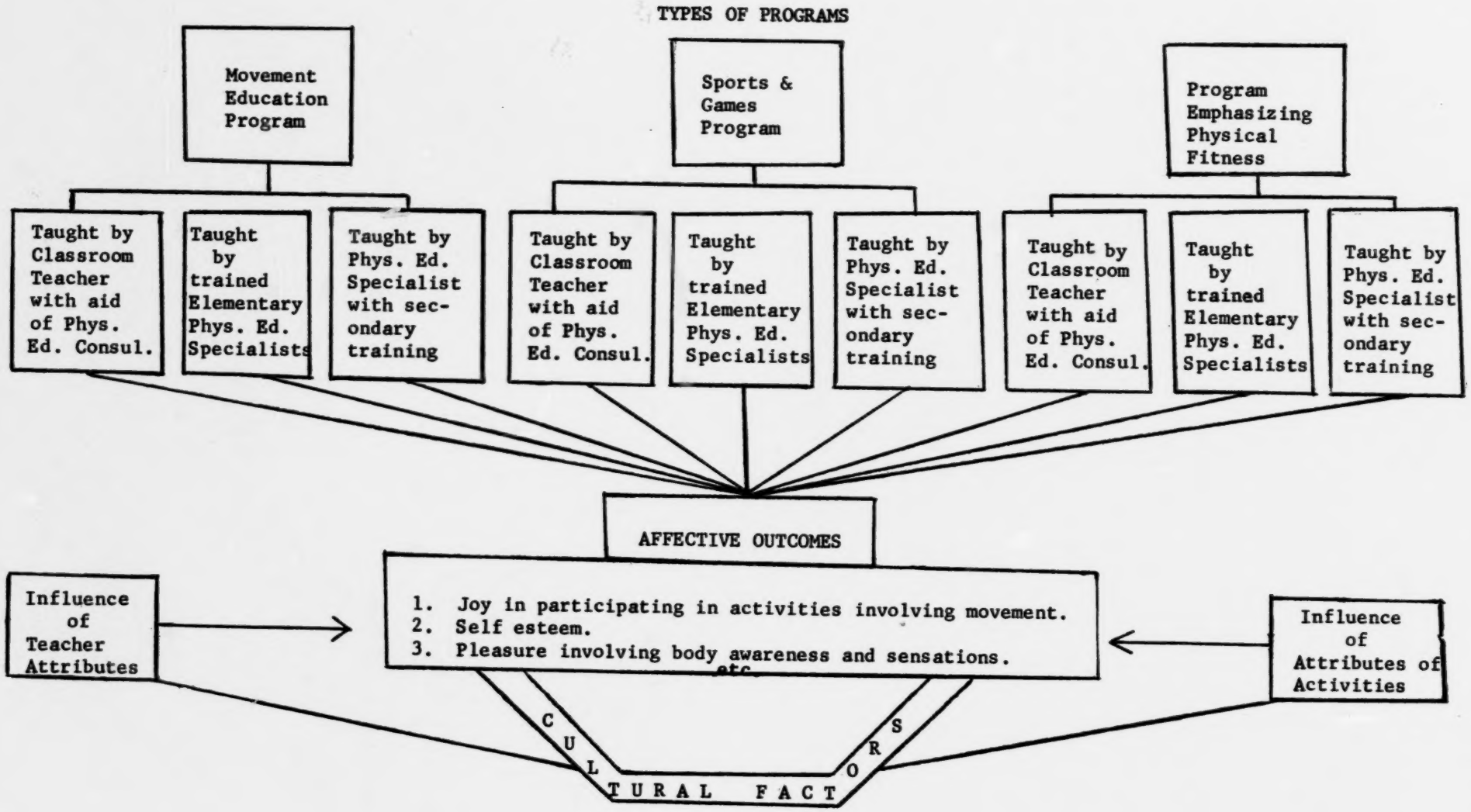
TYPES OF PROGRAMS
Movement Education Program
Sports & Games Program
Program Emphasizing Physical Fitness
Taught by Classroom Teacher with aid of Phys. Ed. Consul.
Taught by trained Elementary Phys. Ed. Specialists
Taught by Phys. Ed. Specialist with secondary training
Taught by Classroom Teacher with aid of Phys. Ed. Consul.
Taught by trained Elementary Phys. Ed. Specialists
Taught by Phys. Ed. Specialist with secondary training
Taught by Classroom Teacher with aid of Phys. Ed. Consul.
Taught by trained Elementary Phys. Ed. Specialists
Taught by Phys. Ed. Specialist with secondary training
AFFECTIVE OUTCOMES
1. Joy in participating in activities involving movement.
2. Self esteem.
3. Pleasure involving body awareness and sensations.
etc.
Influence of Teacher Attributes
Influence of Attributes of Activities
CULTURAL FACTORS

Fig. 1 A Model for Research

Possible Research Strategies:

(1) Observations of outcomes
(2) Experiments in micro-cosmic settings
(3) Field Experiments

APPENDICES

APPENDIX A

CONFERENCE PARTICIPANTS

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APPENDIX B

New York University
School of Education

Dept. of Health, Education
and Welfare
U.S. Office of Education

A G E N D A

Conference on Conceptualization of Research Problems on the Affective Components of Physical Education Instruction in Elementary Schools

May 25-26, 1970

1. Introduction — Dr. Roscoe C. Brown, Jr.
   Dr. Robert Beezer

2. Introduction of Participants

3. Brief Introductory Statement by Each Participant Concerning His Particular Area of Interest in Relationship to the Project

4. Discussion
   What is Presently Known About the Affective Outcomes of Physical Education - Refer to Abstracts from The Research Quarterly

5. Discussion
   What Do We Need to Know About the Affective Outcomes of Physical Education

6. Discussion
   What Are Possible Research Strategies

7. Next Steps for Implementations

APPENDIX C

ABSTRACTS OF RESEARCH STUDIES ON THE AFFECTIVE OUTCOMES OF PHYSICAL EDUCATION FROM THE RESEARCH QUARTERLY

(1960-1970)

Attitudes	23
Behavior Adjustment	1
Motivation	1
Personal Adjustment	1
Personality	33

ATTITUDES

1. Bell, Margaret, Walters C. Etta and Staff, "Attitudes of Women at the University of Michigan Toward Physical Education" 24:379-391, December 1953

It was. . . the purpose of this project to study the attitudes of college women at the University of Michigan in an attempt to help evaluate the physical education program. All Freshmen who were taking physical education, and Seniors who had taken required physical education at the University of Michigan were studied.

Conclusions: 1) Individual sports are the physical activities, outside of physical education class, most frequently engaged in by Freshmen and Seniors, with group activities running second from 22 to 27 per cent for Freshmen and Seniors, respectively. 2) Outside of physical education classes, Freshmen spend a greater percentage of their time on physical activities than do Seniors. 3) A greater percentage of the Freshmen than the Seniors thought we were accomplishing our objectives, etc.

2. Baley, James A., "Attitudes of University Freshmen Toward Isometric Exercises" 38:143-146, March 1967

During the spring semester of the 1964-65 school year, 30 University of Connecticut freshmen in two required physical education classes were asked to indicate their attitudes toward isometric exercises. Eighteen of these 30 students did 10 min. of isometric exercises with a belt three times each week for 8 weeks, while 12 did 10 min. of the same exercises twice each week for 8 weeks. Selected anthropometric and physical fitness measures were made at the beginning and again at the end of the 8-week period. Students were constantly urged to make all-out contractions in each of the 30 exercises. The instructor performed the exercises with the students who were arranged in circle formation with the instructor in the center.

3. Cross, John A., Brumbach Wayne B., "Attitudes Toward Physical Education of Male Students Entering the University of Oregon" 36:10-16, March 1965

The purpose of this study was to measure the attitude toward physical education of all male, lower division students entering the University of Oregon in September 1960. The Wear Attitude Inventory, Short Form A, was the instrument used. The results indicated that, as a group, these students had a rather favorable attitude toward physical education. In comparing the mean score of this group with

the means reported for two somewhat similar groups, the Oregon students' score was significantly higher. In comparing various subgroups, the following conclusions were made: athletes have better attitudes than non-athletes, the more years of physical education a student has had in high school the better his attitude is likely to be, and students who attended smaller high schools (enrollment under 300) have better attitudes than those from larger schools.

4. Brumbach, Wayne B., "Effect of a Special Conditioning Class Upon Students' Attitudes Toward Physical Education" 39:211-213, March 1968.

As part of a longitudinal study of students' attitudes in the Men's Service Program at the University of Oregon, attitude changes were examined in those students who were forced to take developmental physical education because of low physical fitness test scores. . . .

Conclusions: 1) A physical conditioning course for male college students lacking in physical fitness can be conducted in such a manner that not only their physical fitness but also their attitudes toward physical education can be substantially improved. 2) Special actions to improve the teacher-student rapport may bring about a significant improvement in students' attitudes toward physical education.

5. Campbell, Donald E., "Student Attitudes Toward Physical Education" 39:456-462, October 1968.

A group of 199 college males completed the Wear physical education attitude inventory. The responding subjects were subsequently classified according to the size of the high school attended, the college of matriculation, and the physical education class in which they were currently enrolled. No significant variations in attitude scores toward physical education were found within the subgroups of each of the three classifications. However, a significant difference in attitude scores was found between the responses to the four categories of items of the inventory. A significant variation in response was obtained between the subset formed by the physiological and the social items and the subset created by the mental-emotional and general items of the Wear attitude inventory.

6. Campbell, Donald E., "Relationship Between Scores on the Wear Attitude Inventory and Selected Physical Fitness Scores" 40:470-474, October 1969.

Form A of the Wear Attitude Inventory, the 50-yard dash and the 600-yard run-walk, were administered to one randomly selected physical education class of eighth grade boys in each of six junior high schools to obtain a total of 240 scores. The group means compared favorably with previously reported values for each of the three variables. On the basis of correlation coefficients among the three variables, the conclusion was advanced that no significant relationship existed between attitudes toward physical education as measured by an attitude inventory and the ability to perform the selected physical fitness items.

7. Canning, Helen and Mayer, Jean, "Obesity: Analysis of Attitudes and Knowledge of Weight Control in Girls" 39:894-899, December 1968

A questionnaire involving attitudes toward obesity, food, and physical exercise, and knowledge about weight control, was administered to 225 obese female adolescents and 213 controls. Results indicated an obsession on the part of the obese with their weight, to such an extent that nonrelated areas became involved in the issue. Despite the greater knowledge of the obese concerning these factors seemed to have little effect in helping them deal with their obesity.

8. Edgington, Charles W., "Development of an Attitude Scale to Measure Attitudes of High School Freshman Boys Toward Physical Education" 39:505-512, October 1968

The purpose of this study was to develop a reliable and valid scale to measure the attitudes of high school freshman boys toward physical education. A preliminary form of 125 statements of each statement. Using the Likert technique, the scale was then administered to 300 students to establish the reliability and validity of the scale. The reliability of the final form of the scale established by using the split-half method was .92. Comparison of test results from 30 students with subjective judgments of physical education instructors for a check on construct validity was significant at the .01 level.

9. Harres, Bea, "Attitudes of Students Toward Women's Athletic Competition" 39:278-284, May 1968

The purpose of this study was to ascertain and to analyze the attitudes of men and women undergraduate students at the University of California, Santa Barbara, concerning the desirability of intensive athletic competition for girls and women. In January 1966, a questionnaire and an attitude inventory were administered to a random stratified sample of 300 undergraduate students. The attitude inventory consisted of 38 statements which were divided into four categories -- social-cultural, mental-emotional, physical, and personality. Two hundred and eighty-four questionnaires and attitude inventories (94.7 per cent) were completed and were submitted to statistical analysis.

Although the population was found to be favorable in attitude, the range of scores indicated that considerable differences of opinion existed concerning the desirability of athletic competition for girls and women.

10. Isenberger, Wilma, "Self-Attitudes of Women Physical Education Major Students and of Women Physical Education Teachers" 30:44-53, March 1959

The purpose of this study was to determine the relationship between the self-attitudes of women physical education major students and those of women physical education major students from three institutions and 167 women physical education teachers. The "Who Am I?" test, a Twenty Statements Test of Self-Attitudes (TST), was used as a measure of self-attitudes. The results of this study indicated that there was a significant difference between the self-attitudes of student groups within a school and between schools. It was also indicated that the self-attitudes of teachers differed significantly from those of students enrolled in a liberal arts college or a teachers college connected with a university but were similar to those of students in a teacher education institution.

11. Isenberger, Wilma, "Self-Attitudes of Women Physical Education Major Students as Related to Measures of Interest and Success" 30:167-177, May 1959

The purpose of this study was to determine the relationship between the self-attitudes of women physical education major students and measures of interest and success. A second purpose of this study was to determine

the relationship between the interests of the women physical education major students and those of women physical education teachers. Two hundred seventy-seven women physical education major students from three institutions and 115 women physical education teachers participated in the various phases of this study. The "Who Am I?" test was used as a measure of self-attitudes. Interest was measured by the Strong Vocational Interest Blank. Success was measured by the Minnesota Teacher Attitude Inventory, the Scott General Motor Ability Test, a teacher trait evaluation sheet, semester grades in physical education theory and skill courses, and total university semester grades. The results of this study indicated that self-attitudes are not significantly related to interest as measured by the Strong Vocational Interest Blank. Self-attitudes and success as measured by the Minnesota Teacher Attitude Inventory are not significantly related. A negative but significant relationship between judges' ratings of teacher traits and self-attitudes was indicated. The relationship between semester grades and self-attitudes, and significant for one of the student groups. A relationship between motor ability and self-attitudes was indicated. Women physical education major students scored significantly higher on the Strong Vocational Interest Blank than did the teachers of physical education.

12. Keogh, Jack, "Analysis of General Attitudes Toward Physical Education" 33:239-244, May 1962

The purpose of this study was to determine if students differed in their attitudes toward general benefits or values of physical education and if men and women differed in this respect. The responses of 136 men and 130 women to the Wear Physical Education Attitude Inventory (Form A) were analyzed to determine if differences between men and women or size of agreement response were related to items with a common meaning. Men and women were not different in their stated attitude toward physical education. Subjects endorsed the social, physical, and emotional values of physical education, but they conflicted in their opinions regarding the relative value of a physical education program in the school curriculum.

13. Keogh, Jack, "Extreme Attitudes Toward Physical Education" 34:27-33, March 1963

The purpose of this study was to analyze stated attitude responses and selected descriptive information in relation to two groups of men and women who demonstrated

extreme attitudes toward physical education. From an original group of 266 subjects, 69 men and women were selected whose scores on the Wear Physical Education Attitude Inventory were extremes of high or low. Additional data were obtained through a group interview questionnaire. There were no male-female differences within the extreme groups. The low groups offered some minimum support for the outcomes of physical education, but they vigorously questioned the relative value of physical education as a school program. There was no evidence to indicate that negative attitudes were related to non-participation.

14. Kenyon, Gerald S., "Six Scales for Assessing Attitude Toward Physical Activity" 39:566-574, October 1968

Based upon a multidimensional model for characterizing physical activity, the development of two forms (college men, college women) of an attitude inventory is described. Items held to be representative of the six dimensions of the model were evaluated on the basis of factor and item analyses using data generated by the use of preliminary forms. Hoyt reliabilities ranged from .72 to .89 for the six scales. Scales were able to differentiate between appropriate high and low preference groups for a particular type of activity in all cases except physical activity perceived as "catharsis." The stability of the instrument is shown by comparing measures of central tendency, variability, and reliability of the basic sample with those drawn from a second, but similar population. Normative data, instructions, and a list of items, are provided.

15. Lakie, William L.,"Expressed Attitudes of Various Groups of Athletes Toward Athletic Competition", 35:497-503, December 1964

A competitive attitude scale of 22 items was designed for the purpose of revealing to what degree various sports groups subscribed to the "win-at-any cost" philosophy of athletics. The scale was administered to 228 athletes participating in six varsity sports at three types of schools. The data revealed no differences in the expressed attitudes among athletes categorized by sports or among athletes categorized by the type of school attended. An analysis of the results of this study suggest that outcomes in sportsmanlike behavior may vary under different leadership and environment and that future studies in this area should be designed to study these variables.

16. McCue, Betty Foster, "Constructing an Instrument for Evaluating Attitudes Toward Intensive Competition in Team Games:, 24:205-209, May 1953

It is recognized that many changes are taking place in our culture today. Some of these changes directly affect physical education and athletic programs and imply changes in philosophy. Therefore, it seems the responsibility of physical educators to understand, evaluate, and, as far as possible, to control these changes in line with general education objectives.

Purpose of the Study: Attitudes toward athletic competition in team games are at present undergoing radical revisions. A first step toward making an appraisal of this reaction to athletic competition is to gain a knowledge of present status. The purpose of this study was to develop a procedure which would make possible an objective and reliable assessment of individual and group attitudes toward intensive competition in team games.

17. Mista, Nancy J., "Attitudes of College Women Toward Their High School Physical Education Programs", 39:166-174, March 1968

A revision of the Plummer attitude inventory and a background information questionnaire were administered to 1,126 freshman college women enrolled in the private four-year colleges in Iowa in September 1964. Attitude scores were determined and comparisons were made on the basis of background information. Significant differences in attitude toward physical education were found between those earning interscholastic athletic letters and those not earning letters, those participating in organized physical activity programs outside of school and those not participating in such programs, those from farms and those from cities, those from small high school graduating classes and those from large high school graduating classes, those who rated themselves above average in physical skills and those who enjoyed their high school physical education programs and those who did not. Significant differences did not exist between those who had physical education in high school and those who did not, those who had a woman teaching their high school physical education classes and those who did not, those who attended parochial high schools and those who did not, those from small towns and those from cities, those who had physical education two hours or less a week and those who had physical education four hours or more a week, and those from Iowa and those from other states.

18. Mitchem, John C. and Bell, Mary M., "Women's Attitudes Toward Physical Education in the General Education Program at Northern Illinois University", 37:515-519, December 1956

A study using a Modified Wear Attitude Inventory (2) was made to determine the attitudes of freshmen and junior women toward the required physical education program at Northern Illinois University and to evaluate the physical education offerings in terms of student needs. The findings indicated preference for individual sports, a highly favorable attitude toward physical education on the part of both freshmen and juniors, and a need for re-evaluation of methodology and interpretation of objectives in teaching the required program.

19. Neale, Daniel C., Sonstroem, Robert J., and Metz, Kenneth F., "Physical Fitness, Self-Esteem, and Attitudes Toward Physical Activity", 40:743-749, December 1969

A total of 165 adolescent boys took measures of physical fitness, general self-esteem, and attitudes toward physical activities. High-fit compared to low-fit boys were higher in self-estimates of physical ability ($P < .001$) and self-reported attraction to physical activities ($P < .001$) but not significantly different in general self-esteem nor in reported extent of participation in voluntary physical activities. In addition significant correlations were observed between self-estimates of physical ability and attraction to physical activity, and between attraction to physical activity and extent of voluntary participation in physical activity.

20.O'Bryan, Maureen H., and O'Bryan K.G., "Attitudes of Males Toward Selected Aspects of Physical Education", 40:343-352, May 1969

The evaluative dimension of the Semantic Differential was used, after factor analysis, to investigate male attitudes toward selected aspects of physical education. Indexes of homogeneity of meaning for five aspects were calculated for each of six groups of 50 subjects drawn from 300 males representing school boys, teachers, physical education majors, graduate students, and academic staff. Results obtained were discussed in terms of their possible delineation of physical education image.

21. Vincent, Marilyn F., "Attitudes of College Women Toward Physical Education and Their Relationship to Success in Physical Education", 38:126-131, March 1967

The Wear Attitude Inventory was administered to 188 college women in a variety of physical education activities. The final grade received for the activity course was used as the success factor. Attitudes were analyzed both as to values and as to activity groups and correlations were computed between attitude and success. Attitudes toward physical education were generally favorable, with the contributions of physical education to the physiological-physical values being higher than other values examined. There was a significant relationship between attitude and success at the .05 level. The higher significance accrued to those students having more favorable attitudes.

22. Vincent, Marilyn F., "Prediction of Success in Physical Education Activities From Attitude, Strength, and Efficiency Measurements", 38:502-506, October 1967

College women (N=37) enrolled in eight physical education activity courses were measured in attitude, strength, and efficiency. Attitudes were evaluated by the Wear Attutude Inventory, strength by dyanometers, and efficiency through calculation of net energy cost of an exercise bout, using an indirect, closed circuit respirometer. Partial and multiple correlations were calculated between these independent variables and success in physical education activities as measured by grades. Regression equations consisting of various combinations of the three independent variables were formulated and tested by analysis of variance. All prediction batteries were significant in the prediction of success in physical education activities.

23. Wessel, Janet A., and Nelson, Richard, "Relationship Between Strength and Attitudes Toward Physical Education Activity Among College Women", 35:562-569, December 1964

The purpose of this study was twofold: to investigate (a) the relationship between strength and attitudes toward physical education among 200 college women, and (b) strength in relation to two groups of women whose stated responses toward physical activity were extremes of high or low. Women enrolled in physical education classes at Michigan State University expressed a very favorable attitude toward physical education as an activity course as measured by the

Wear Inventory. The validity and reliability findings of this study approximate findings of previously reported studies. Significant correlations were found between strength (hand grip, back lift, pull, push measures) with scores on Wear's Inventory, Self-Rating Scale, and the three questions used in his validity study; although the relationships were low. Back strength showed the highest relationship with all attitude measures. Number of years of participation in high school physical education was not related to the strength measures, Wear's Inventory, or Self-Rating Scale. However, years of high school physical education was found to be significantly related to the results of the three questions (high personal judgment of the value of physical activity and active participation as part of personal recreation). Grip strength was found to be directly related to the group of subjects which was consistently positive in its responses to the questionnaire items. Based on descriptive information, the high group could be characterized as being physically active, participating more in the intramural program, enjoying corecreational sports activity, and valuing the importance of physical activity as part of its personal recreation program.

BEHAVIOR ADJUSTMENT

1. Olson, David M., "Motor Skill and Behavior Adjustment: An Exploratory Study", 39:321-326, May 1968

This study was undertaken to evaluate the effectiveness of a supplementary physical education program in improving selected motor skills and behavior adjustment of primary school children who were poor in motor skills and deficient in behavior adjustment. Tests were administered to members of two experimental groups (instruction and noninstruction) and two control groups (deviant and normal) at various times during a one-year period. Improvement in motor performance demonstrated by each of the two experimental groups was significantly greater than such improvement made by each of the control groups. The level of motor performance attained by each of the experimental groups did not significantly differ from the level of motor performance exhibited by normal primary school children. Changes in behavior adjustment among the participants were not statistically significant.

MOTIVATION

1. Walters, C. Etta, "A Sociometric Study of Motivated and Non-Motivated Bowling Groups", 26:107-112, March 1955

An analysis of the changes in social adjustment, by means of the Cowell Personal Distance Ballot, of motivated and non-motivated groups in a seven-week bowling class is presented. The results appear to indicate that, while both groups became more socially adjusted as a result of group participation and acquaintance, the motivated group became better adjusted than the non-motivated. A comparison of social adjustment ratings between good and poor bowlers showed the good bowlers to be the better-accepted members of the group.

PERSONAL ADJUSTMENT

1. Bentson, T.B. and Summerskill, John, "Relation of Personal Success in Intercollegiate Athletics to Certain Aspects of Personal Adjustment", 26:8-14, March 1955

The investigation studied differences in personal adjustment between 59 athletes who won letters in varsity sports and 59 athletes who did not win letters; both groups had participated successfully in high school and college Freshman sports. The data were obtained from record research and interviews. Letter winners were taller and heavier at matriculation and had a history of less serious injuries. Letter winners participated in fewer college activities but expressed greater satisfaction with their college careers. No difference in scholastic achievement were found when aptitude was controlled. Letter winners sustained more injuries during their college careers than non-winners.

PERSONALITY

1. Behrman, Robert M., "Personality Differences Between Nonswimmers and Swimmers", 38:163-171, May 1967

The investigation was made to determine whether there are personality differences between male college freshman swimmers and nonswimmers and to determine the relationship between personality traits and swimming progress among non-swimmers experiencing a common course of instruction in swimming. Subjects were compared on the basis of swimming performances, personality tests, biographical data forms, and interviews with subjects who failed to learn how to swim. Comparisons revealed significant differences between swimmers and non-swimmers and between learners and non-learners. The data indicated a need to investigate methods of teaching fearful nonswimmers based on indications of pertinent personality traits, fears and experiences in the water.

2. Berger, Richard A. and Littlefield, Donald H., "Comparison Between Football Athletes and Nonathletes On Personality", 40:663-665, December 1969

The purpose of this study was to determine whether differences in personality, as measured by the California Psychological Inventory, existed between 30 outstanding football athletes, 30 nonoutstanding football athletes, and 30 athletes after controlling for scholastic aptitude, as measured by the Scholastic Aptitude Test. The analysis of variance found no significant difference at the .01 level between them on any of the 18 items of the California Psychological Inventory, nor on a composite score.

3. Biddulph, Lowell G., "Athletic Achievement and the Personal and Social Adjustment of High School Boys", 25:1-7, March 1954

In this study the personal and social adjustment of high school boys of high athletic achievement was compared with the adjustment of boys of low athletic achievement. It was found that students ranking high in athletic achievement demonstrated a significantly greater degree of personal and social adjustment than did students ranking low in athletic achievement. Because of this significant relationship it

was concluded that it is important for all boys, instead of a specialized few, to develop motor ability. It is recommended, therefore, that greater emphasis be placed on intramural athletic activities rather than upon interscholastic activities which neglect the majority of boys in favor of a selected few.

4. Booth, E.G., Jr., "Personality Traits of Athletes as Measured by the MMPI", 29:127-137, May 1958

In this study, the Minnesota Multiphasic Personality Inventory (MMPI) was used to compare the personality ratings of the following groups of college students: 1. Freshman and upper-class athletes and non-athletes; 2. Freshman and varsity athletes who participated in only team, individual, or team and individual sports; and 3. Athletes who were rated as poor or good competitors.

On the interest (Mf) variable, the non-athletes scored significantly higher than the athletes. Freshman athletes, freshman non-athletes, and upper-class non-athletes scored significantly higher than the varsity athletes on the anxiety (A) variable.

Varsity athletes and the upper-class non-athletes scored significantly higher than the freshman athletes and non-athletes on the dominance (Do) variable. On the social responsibility (Re) variable, the upper-class non-athletes scored significantly higher than the freshman athletes and non-athletes and the varsity athletes.

Varsity athletes who participated in only individual sports scored significantly higher on the depression (D) variable than those who participated only in team sports. On the psychasthenia (Pt) variable, the participants in varsity individual sports scored significantly higher than the athletes who participated in both team and individual varsity sports.

Twenty-two items that discriminated significantly between poor and good competitors were selected from the 550 items of the MMPI.

5. Brunner, Burton C., "Personality and Motivating Factors Influencing Adult Participation in Vigorous Physical Activity", 40:464-469, October 1969

The adjective Check List and a questionnaire were

administered to 60 adult male Caucasians; the men were divided into two equal groups -- participants and non-participants in vigorous physical activity. Results disclosed significant differences between the groups on eight scales. Participants scored significantly higher on: Intraception, Number of Favorable Adjectives Checked, Defensiveness, Achievement, Dominance, and Self-Confidence, whereas nonparticipants were superior on Succorance and Counseling Readiness. An examination of the personal descriptions relevant to these eight scales revealed more extroverted traits among the participants and more introverted traits among the nonparticipants when intergroup comparisons were made. Members of the participant group stated that the primary reason or motivation for regular participation was the desire to keep physically fit and the associated feeling of well-being. The nonparticipants stated that the primary reason for not participating regularly was the feeling of lack of time due to business reasons.

6. Flanagan, Lance, "A Study of Some Personality Traits of Different Physical Activity Groups", 22:312-323, October 1951

Summary and Conclusions - A personality inventory was assembled for the purpose of studying the personality traits of fencers and other physical activity groups. The inventory consisted of four different types of items, measuring Ascendance-Submission, Masculinity-Femininity, Extroversion-Introversion, and Emotional stability-Emotional instability.

The inventory was administered to six groups of male college students who were taking activity courses on a voluntary basis in fencing, badminton, basketball, volleyball, boxing and swimming at the University of California. A total of 221 students participated in the study.

Results of the personality inventory showed group differences, some of statistical significance, with respect to the four personality traits. Fencers indicated by their test scores that they were more ascendant than basketball players, volleyball players, and boxers, the differences being statistically significant at the three, one, and three per cent level of probability respectively. Fencers also professed to be more feminine than basketball players -- statistically significant at the three per cent level of probability. Badminton players demonstrated in terms of their inventory responses that they were more extroverted than volleyball players --

this difference being significant at the two per cent level. Volleyball players are more emotionally unstable than basketball players, which is statistically significant at the two per cent level of probability.

Since there was no selective influence other than the free choice of the subjects in determining what physical activities they participated in, it is concluded that groups who spontaneously select one physical activity course in preference to another physical activity course demonstrate that personality is a factor in making that selection.

7. Hendry, L.B., "Assessment of Personality Traits in the Coach-Swimmer Relationship, and a Preliminary Examination of the Father-Figure Stereotype", 39:543-551, October 1968

Personality traits of 126 swimmers and 56 coaches were assessed on the 16 PF questionnaire (Cattell) to gain an objective measure of their personality traits. Subjective rating between coaches and their own swimmers by cross-assessment was carried out, and coaches additionally gave a self-rating. The mean scores of objective and subjective ratings were compared. A series of projection pictures of the father figure were shown and coaches and swimmers answered questions on these. Responses were compared with adult and school-children control groups. Results indicated some similarity between subjective and objective ratings. Differential findings on the father figure are discussed.

8. Hunt, David H., "A Cross Racial Comparison of Personality Traits Between Athletes and Nonathletes", 40:704-707, December 1969

This study was designed to investigate the differences in four personality traits between Negro and white athletes and nonathletes utilizing the Gordon Personal Profile. Six hypotheses, all stated in the null form, were used in comparing the different groups. A total of 111 subjects were divided into four groups based upon their ethnic background and athletic ability. The results produced seven significant differences at the .05 level: three between white athletes and white nonathletes; one between Negro varsity athletes and Negro nonathletes; and three between white varsity athletes

and Negro nonathletes. These results suggested that white varsity athletes were significantly different and ranked higher in Ascendancy, Responsibility, and Emotional Stability traits when compared to Negro and white nonathletes. They also suggested that Negro varsity athletes were significantly different and ranked higher in Responsibility when compared to Negro nonathletes. No significant differences occurred when white varsity athletes and Negro varsity athletes were compared; when Negro varsity athletes and white nonathletes were compared; or when Negro nonathletes and white nonathletes were compared.

9. Ibrahim, Hilmi, "Recreational Preference and Personality", 40:76-82, March 1969

Zeigler's device, "How do you rate yourself recreationally?", was used to classify 103 male and 104 female students into four categories: recreationally outstanding, above average, average, and below average. California Psychological Inventory (CPI) was administered to all subjects. Analyses of variance were conducted to find out if signifcant difference existed among the four groups of men and the four groups of women. The two groups were reclassified according to type of activity or cluster of activities preferred: physical, social, communicative, aesthetic, and learnings; and another set of analyses of variances was conducted among these new groups. Although the F tests revealed that there were significant differences in some, but not all, of the traits of personality among the groups, it was concluded that the evidence is not strong enough to indicate that there are differences between the personalities of those who are recreationally inclined and those who are not recreationally inclined. Also, it was concluded that there was not enough statistical evidence to support the notion that the personalities of those who are inclined toward sport, social activities, communication, aesthetics, or hobbies would vary significantly.

10. Johnson, Warren R., Hutton, Daniel C. and Johnson, Granville B., Jr., "Personality Traits of Some Champion Athletes as Measured by Two Projective Tests: Rorschach and H-T-P", 25:484-488, December 1954

Although generalizing from this small sample of champions would be unjustified, certain personality patterns were surprisingly consistent throughout this particular group. The subjects' extreme aggressiveness, anxiety, and sufficient freedom from emotional controls to aggress freely under

certain conditions -- coupled with a high level of aspiration -- would suggest a strong need for competitive achievement. The evidence suggests that in these subjects, being a champion was a matter of psychological necessity.

11. Johnson, Warren R. and Hutton, Daniel C., "Effects of a Combative Sport Upon Personality Dynamics as Measured by a Projective Test", 26: 49-53, March 1955

In this exploratory study, eight college wrestlers were tested with the House-Tree_Person test of personality under three conditions: (1) before a wrestling season; (2) 4 to 5 hours before the first intercollegiate match of the season; and (3) the morning after the competition. Test interpretation revealed several group tendencies from condition to condition, outstanding among which were: decrement of functioning intelligence, increased aggressive feelings, and increased neurotic signs in the before match condition; and a return to approximately the status of condition I except for considerably less aggressive feelings in condition III.

12. Keogh, Jack, "Relationship of Motor Ability and Athletic Participation in Certain Standardized Personality Measures", 30: 438-445, December 1959

In an attempt to differentiate more adequately between the terms motor ability and athletic participation in their relationship to some measurable aspects of personality, a group of 167 Pomona College junior and senior male students were classified both as to level of motor ability and participation in athletics and were administered the CPI. Utilizing a total test response derived from the sum of ranks of median scores, low and middle motor ability groups ranked higher in the main effects and within the nonathlete and intramural participation groups, but athletic participation did not appear to have any effect upon the measure studied. The pattern of results suggested an expectation hypothesis wherein higher ratings in the personality inventory might be achieved by groups of subjects who participated at a level which would be "expected" in relation to their motor ability.

13. Kroll, Walter and Petersen, Kay H., "Personality Factor Profiles of Collegiate Football Teams", 36: 433-440, December 1965

Five collegiate football teams were selected so as to

provide data on winning and losing teams as well as on several categories of colleges. Personality profiles of the five teams (N=139) on the Cattell 16 P. F. test were scrutinized through a multiple-discriminant analysis and a maximum-likelihood classification method.

Significant discrimination between teams was demonstrated with the highest contributors to the derived-discriminant function being factor B (intelligence), factor H (shy versus bold), factor O (confident versus worrying), and factor Q (casual versus controlled). Based upon actual versus predicted group membership, the percentage of correct classifications was 82.

The contrast between univariate and multivariate analysis was commented upon.

14. Kroll, Walter, "Sixteen Personality Factor Profiles of Collegiate Wrestlers", 38: 49-57, March 1967

Ninety-four amateur and collegiate wrestlers were studied with the Sixteen Personality Factor Questionnaire. Personality profiles were studied across different levels of demonstrated achievement in wrestling. Discriminant function analyses failed to establish any profile differences between criterion groups. Groups assessed were (a) a superior group comprised of 28 wrestlers from the United States Olympic team, NCAA or NAIA champions or place winners, (b) an excellent group comprised of 33 collegiate wrestlers who were varsity representatives, rated excellent by their coach, and who had won at least 60 percent of their matches during the season; (c) an average to below average group of the 33 wrestlers remaining on four college teams secured for the study. When compared to norms, wrestlers demonstrated a significant departure from average on factor I indicating toughmindedness, self-reliance, and masculinity. No support was found for the suggestion that wrestlers may possess a neurotic profile.

15. Kroll, Walter and Carlson, Robert B., "Discriminant function and hierarchial grouping analysis of Karate participants' personality profiles", 38: 405-411, October 1967

Seventy-one amateur karate participants were studied with the Cattell sixteen personality factor questionnaire. Multiple discriminant analysis revealed no significant profile differences between the advanced (N=17), intermediate (N=25), or novice classifications (N=29). Since original criterion

groups were formed on the basis of belt classification and length of participation, a hierarchial grouping analysis of the 71 personality profiles was performed as a means of eliciting alternate classification criteria. None were suggested.

It was concluded that on the basis of the 16 PF test and the sample studied on profile components or patterns were found which differentiated between (a) levels of karate participation and proficiency, or (b) karate participants and the normal population.

16. Lakie, William L., "Personality Characteristics of Certain Groups of Intercollegiate Athletes", 33: 566-573, December 1962

Five scales from the Omnibus Personality Inventory were combined to form the Attitude Inventory administered to 230 athletes from a state university, a private university, and two state colleges. Scores on personality scales differentiated (a) among sports groups within the state university and the private university, but not within the state colleges, and (b) between athletes attending the private university and those attending each of the other three schools. When the 230 athletes were grouped by sports, irrespective of the school attended, no significant differences were observed.

17. LaPlace, John P., "Personality and Its Relationship to success in Professional Baseball", 25: 313-319, October 1954

The purpose of this study was to determine whether specific personality traits are associated with success in professional baseball. To determine this a "success" group of 49 major league players was compared to a "non-success" group of 64 minor league players. The Minnesota Multiphasic Personality Inventory and a biographical data sheet were employed. Results indicate that major league players are better able than minor league players to:

1. Apply their strong "drive" towards a definite objective by exercising self-discipline.
2. Adjust to occupations, as professional baseball, requiring social contact, or the ability to get along well with other people.
3. Exercise initiative.

18. Malumphy, Theresa M., "Personality of women athletes in intercollegiate competition", 39: 610-620, October 1968

This study described and compared the personality and background of women participating in intercollegiate sports competition. Personal feelings about competition and faculty adviser estimation of personality were also described. The Cattell 16 PF test of personality and a personal information questionnaire were administered. This investigation involved four groups of junior or senior college women athletes: 15 individual, 16 subjectively-judged, 28 team, and 18 team-individual sports participants. Each subject was required to have competed in her sport for at least two seasons. A group of 42 nonparticipants was also studied. The subjects were selected from the five largest state universities in Ohio. Results indicated groups were similar on 14 dimensions of personality and significantly different on 9. The individual and subjectively-judged were more alike and also more similar to the nonparticipants than to the other two groups. The team and team-individual groups tended to be alike and dissimilar to the other three groups. Faculty advisers significantly misjudged the personality of their participants, with the team sports advisers being the most inaccurate. Questionnaire information indicated differences in socioeconomic background as well as personal feelings about competition.

19. Nelson, Dale O., "Leadership in Sports", 37: 268-275, May 1966

This investigation was to study the personality and physical characteristics of high school basketball leaders and nonleaders. After identification of the leaders and nonleaders, data were obtained from players and coaches questionnaires, and two personality tests, (a) the IPAT Anxiety Scale Questionnaire and (b) Cattell's Sixteen Personality Factor Questionnaire. Both leaders and nonleaders were above the normal range on the general intelligence factor, and the leaders were found to be significantly different from the nonleaders of five of the sixteen factors. All factors except the general intelligence factor were within the normal range when compared to standardized scores. Five student-body presidents were listed among the leaders, and all leaders rated high on questions reflecting physical ability. Leaders averaged 6 feet in height and weighed 171 pounds. Nonleaders averaged 6 feet 1 inch in height and weighed 168 pounds.

20. Newman, Earl N., "Personality traits of faster and slower competitive swimmers", 39: 1049-1053, December 1968

This study made the comparison of swimmers ranked according to swimming ability as determined by actual time tests in events used in NCAA high school dual meets with personality traits as measured by the Thurstone temperament schedule. The purpose was to add to the knowledge of characteristics of swimmers by determining if the factors within the individual which make a boy a better swimmer correlate significantly with the measured personality traits. Twenty-one swimmers were times throughout the swimming season on each of the swimming events and the rank of each swimmer calculated. Each swimmer was given the personality test. Statistical analysis of the rankings of these seven personality traits was made in comparison to the swimming rank of the swimmers in the various strokes. Three rank difference correlations were found significant at the .05 level, indicating a tendency for rank of swimming performance to correspond with rank of personality variable. The dominant trait was positively correlated with 100-yard freestyle ranking. Negative correlations were found with the sociable trait and the 100-yard breatstroke and with the reflective trait and 200-yard freestyle.

21. Peterson, Sheri L., Weber, Jerome C., and Trousdale, William W., "Personality traits of women in team sports vs. women in individual sports", 38: 686-690, December 1967

The problem under investigation was to determine if there were distinguishing personality traits when women who compete in team sports were compared to women who compete in individual sports. The subjects were chosen from a selected group of 156 women AAU athletes and the 1964 United States Olympic team. Those women who agreed to take part in the study were sent a copy of Form A of the Sixteen Personality Factor Questionnaire, which was the instrument used to measure selected personality factors. Differences between groups were analyzed by means of the t test.

The results indicated that women athletes who compete in individual sports rated higher on the personality factors of dominance, adventurousness, sensitivity, introversion, radicalism, and self-sufficiency and lower on the factor of sophistication when compared to women athletes who compete in team sports. No differences were found in the factors of sociability, intelligence, stability, surgency, conscientious-

ness, suspecting, guilt-proneness, high self-sentiment, or high ergic tension.

22. Schendel, Jack, "Psychological Differences Between Athletes and Nonparticipants in Athletics at Three Educational Levels" 36: 52-67, March 1965

The California Psychological Inventory was administered to 33r ninth grade, twelfth grade, and college team sport athletes and nonparticipants in athletics. Statistically significant differences between the means of the athletes and the nonparticipants were found on eight of the CPI scales of the ninth grade subjects, on four scales of the twelfth grade subjects, and on nine scales of the college subjects. At the ninth and twelfth grade levels all the significant differences involved scales on which the athletes had the higher means with the exception of two scales at the twelfth grade level. At the college level eight of the nine significant differences involved scales on which the nonparticipants had the higher means.

23. Seymour, Emery W., "Comparative Study of Certain Behavior Characteristics of Participant and Non-Participant Boys in Little League Baseball", 27: 338-346, October 1956

This study dealt with boys ages 10 to 12. Half played Little League Baseball in 1954. The others, equated by age and grade, did not. Three measurement instruments were administered prior and subsequent to the season. T ratios were computed for differences between groups and between measurement periods. There was little difference in the number of problems expressed by the groups. The participants scored slightly higher each time on personality traits. Likewise, they received significantly higher social acceptance ratings from their peers each time. Changes during the study were inconclusive as to any effects of participation.

24. Smart, Russell and Smart, Mollie, "Kraus-Weber Scores and Personality Adjustment of Nursery School Children", 34: 199-205, May 1963

Twenty-eight children aged 43 to 61 months were given the Kraus-Weber Test of Muscular Fitness, scored in a modified form, and the Stanford Binet, Form L-M. Ratings by nursery school teachers on characteristics used by Langdon and Stout to select well-adjusted children were available. The personality variables correlated zero with chronological age, low and positively but insignificantly with mental age, and posi-

tively at a level beyond chance with the Kraus-Weber scores. A factor analysis yielded a first factor, tentatively named an age factor, and a second factor, tentatively named adjustment, or lack of emotional disturbance. The Kraus-Weber scores had a high positive loading in the second factor. Explanations of this factor loading are explored.

25. Thorpe, Jo Anne, " Study of Personality Variables Among Successful Women Students and Teachers of Physical Education", 29: 83-92, March 1958

The purpose of this tudy was to determine whether or not a pattern of similarity of personality variables existed among successful women undergraduate students, graduate students, and teachers in physical education and to compare the total physical education administered to 100 teachers, 55 graduate students, and 100 senior majors who were suggested by administrators in selected schools of professional preparation. The physical education groups showed a similarity of patterns, and significant differences were found when the total physical education group was compared with the normative group.

26. Tillman, Kenneth, "Relationship Between Physical Fitness and Selected Personality Traits" 36: 483-489, December 1965

In the first phase of this study, 386 high school junior and senior boys were administered a physical fitness test. The boys who finished in the upper 15 percent on the test were compared, by use of a battery of three personality tests, with the boys who were in the lower 15 per cent. Significant personality differences were found.

In the second phase of the study, the low physical fitness group was divided into a control and an experimental group. A 9-month physical fitness program for the experimental group resulted in a significant gain in physical fitness. When compared with the control group changes during the experimental period, the experimental group personality trait changes were found to be significantly different on only one test item.

27. Timmermans, Helen, M., "A comparison between physical education majors and nonmajors in certain personality traits", 39: 1088-1093, December 1968

This study was designed to investigate possible differences between physical education majors and nonmajors in

certain personality traits, and between freshman and sophomore majors in these same traits. The Guilford-Zimmerman Temperament Survey was administered to 22 freshman women physical education majors, 22 sophomore physical education majors, and 77 freshman and sophomore nonmajors. The comparison between physical education majors and nonmajors showed that the majors scored significantly higher at the .01 level on only one trait, that of General Activity. In comparing freshman majors and sophomore majors, there was a significant difference only in Sociability, the freshman majors scoring higher.

28. Werner, Alfred C. and Gottheil, Edward, "Personality Development and Participation in College Athletics", 37: 126-131, March 1966

On the basis of their past histories of athletic participation, a group of 340 cadets entering the United States Military Academy were designated as athletes, another group of 116 were designated as athletic nonparticipants. The Cattell Sixteen Personality Factor test was administered shortly after entrance and again shortly prior to graduation.

Entering cadet athletes were significantly different from nonparticipants on seven of the 16 P-F scales. The proportion of athletes who graduated from the academy was significantly greater than the proportion of nonparticipants who graduated.

If participation in athletics in college has an effect on personality structure, the effect would be expected to be greater on individuals with little previous athletic participation than on accomplished athletes. However, despite four years of regular athletic participation, the designated nonparticipant group was <u>not</u> found to change in personality structure as measured by the 16 P-F Test: (a) to a greater extent than the athletes; (b) in a different pattern than did the athletes; (c) nor aso as to become more like the athletes.

Thus, no evidence was found to support the view that college athletics significantly influence personality structure. Further research is warranted with different tests, different groups, and at lower age levels.

29. Whiting, H. T. A., and Stembridge, D.E., "Personality and the Persistant Non-swimmer", 36: 348-356, October 1965

Non-swimmers attending any course of instruction can be divided into two categories: those who having received previous instruction are still unable to swim (category 1) and those

This study was conducted for the purpose of determining the relationship between specific factors of personality adjustment and levels of motor achievement in a select group of junior and senior high school boys. Pertinent scales from the 16 Personality Factor Questionnaire and the Guilford Zimmerman Temperament Survey were administered to 154 subjects for the purpose of determining existing personality characteristics. The motor achievement data were collected from administration of the McCloy General Motor Ability and Motor Capacity Test. The data were statistically analyzed through the use of the Pearson product-moment correlation technique, the t test, and the multiple regression technique. The study concluded that, (a) individual group dependance was a factor in extent of exhibited motor achievement and, (b) that levels of motor achievement were predictable with the use of grouped measured personality characteristics.

32. Yarnall, Douglas C., "Relationship of Physical Fitness to Selected Measures of Popularity", 37: 286-288, May 1966

This study was to examine the relationship of physical fitness to selected measures of popularity among high school senior boys.

The problem has been included in several studies ranging from elementary to college age students (1,3,4,5,6). The findings of the studies reviewed by the author indicate that there tends to be a positive relationship between popularity and physical fitness, and between physical strength and athletic ability.

. . . .

Conclusions: A positive relationship does exist between physical fitness and popularity among the high school senior boys in the study. Therefore it may be concluded that physical fitness is of some social value to the high school student.

33. Ponthieux, N. A., and Barker, D. G., "Relationship Between Socioeconomic Status and Physical Fitness Measures", 36: 464-467, December 1965

This study investigated the relationship between socioeconomic status and the seven aspects of physical fitness measured by the AAHPER Youth Fitness Test. The subjects of the study were 329 girls and 304 boys of ages 10, 11, and 12 who were attending the public schools of a small central Texas community. Significant relationships were found, but they did

who have never received previous instruction (category 2). Analysis of the scores on Maudsley Personality Inventories given to university male non-swimmers indicated that students in category 1 had a lower extraversion mean that those in category 2, but results were only significant at the 10 percent level. No significant differences were found in neuroticism scores.

Junior M.P.I.'s were given to all 11- and 12-year-old boys in a variety of secondary schools in order to obtain norms for these particular schools. A comparison of the extraversion means for swimmers and persistent non-swimmers at each of these age levels in the combined results of all the schools indicated highly significant differences (P .01), the non-swimmers being more introverted. Highly significant differences in neuroticism means were found at the 11 age level, and significant differences were found at the 12 age level, the non-swimmers being more neurotic.

It was concluded on the basis of these results that more notice should be taken of the personality of the persistent non-swimmer if better and quicker results are to be achieved.

30. Whittle, Douglas, H., "Effects of Elementary School Physical Education upon Aspects of Physical, Motor, and Personality Development", 32: 249-260, May 1961

This article presents the results of a study of two groups of 81 12-year-old boys who were comparable in such maturity factors as chronological age, skeletal age, weightm height, and Wetzel developmental level. The group in the good physical education program had participated for at least three years; the group in the poor program had little or no physical education in elementary school. There were pronounced differences found between the two groups. The boys in the good program surpassed the boys in the poor program in Rogers Physical Fitness Index (PFI), Metheny-Johnson Test of Motor Educability, the Indiana Motor Fitness Test, and the Vertical Jump. A further investigation was completed in this study. Boys in each group who participated a lot in out-of-class physical activity showed strong superiority over those sho participated a little in out-of-class physical activity.

31. Wilson, Philip K., "Relationship between motor achievement and selected personality factors of junior and senior high school boys", 40: 841-844, December 1969

not favor one status group in all the components of fitness. There were indications that lower-status girls were faster, were better coordinated, and had more endurance but that upper-status girls were stronger in arm and shoulder girdle strength, in abdominal and hip flexor muscles, and in muscular explosiveness. Results indicated that lower-status boys were faster and better coordinated but that higher-status boys scored better in combined agility and speed and in strength of abdominal and hip flexor muscles.

POPULARITY

1. Yarnall, C. Douglas, "Relationship of Physical Fitness to Selected Measures of Popularity" 37:286-288, May 1966

This study was to examine the relationship of physical fitness to selected measures of popularity among high school senior boys.

The problem has been included in several studies ranging from elementary to college age students (1, 3, 4, 5, 6). The findings of the studies reviewed by the author indicate that there tends to be a positive relationship between popularity and physical fitness, and between physical strength and athletic ability.

CONCLUSIONS:

A positive relationship does exist between physical fitness and popularity among the high school senior boys in the study. Therefore it may be concluded that physical fitness is of some social value to the high school student.

STATUS

1. Ponthieux, N. A., and Barker, D. G., "Relationship Between Socioeconomic Status and Physical Fitness Measures" 36:454-467, December 1965

This study investigated the relationship between socio-economic status and the seven aspects of physical fitness measured by the AAHPER Youth Fitness Test. The subjects of the study were 329 girls and 304 boys of ages 10, 11, and 12 who were attending the public schools of a small central Texas community. Significant relationships were found, but they did not favor one status group in all the components of fitness. There were indications that lower-status girls were faster, were better coordinated, and had more endurance but that upper-status girls were stronger in arm and shoulder girdle strength, in abdominal and hip flexor muscles, and in muscular explosiveness. Results indicated that lower-status boys were faster and better coordinated but that higher-status boys scored better in combined agility and speed and in strength of abdominal and hip flexor muscles.